



IBM Z transformação e modernização

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INOVA
2ª Semana de Inovação



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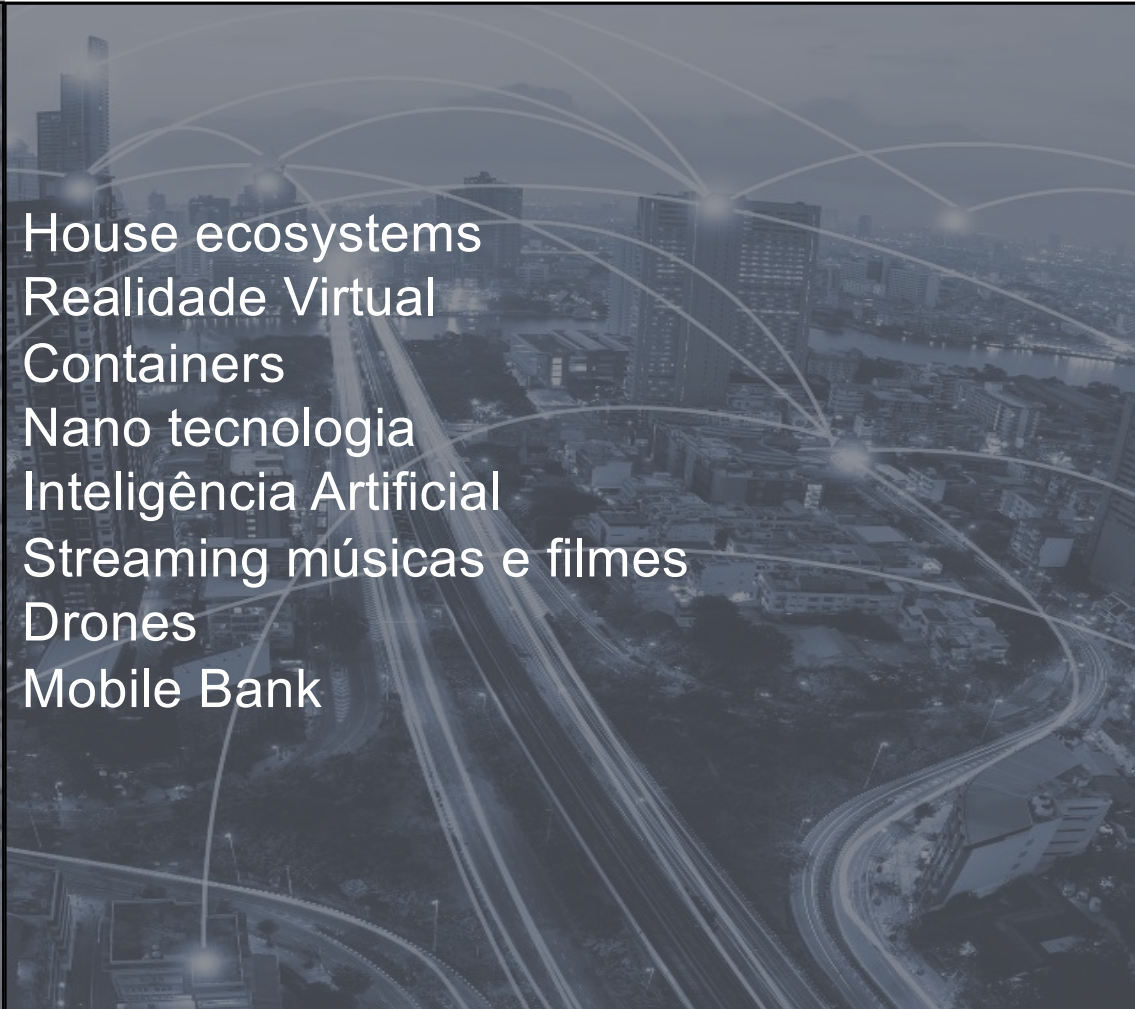
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Introdução

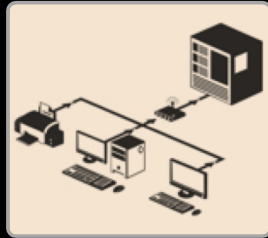


Primeiro Video Game
UNIX
Primeiro Robô
Primeira TAPE
Internet
GPS
ATM



House ecosystems
Realidade Virtual
Containers
Nano tecnologia
Inteligência Artificial
Streaming músicas e filmes
Drones
Mobile Bank

Evolução do IBM Z



Z



Z



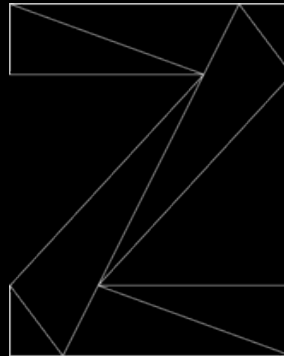
Z



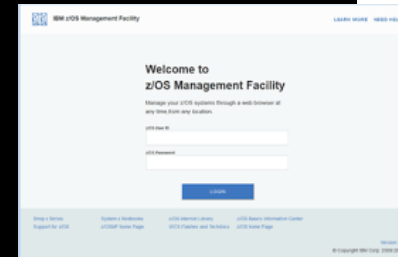
Z



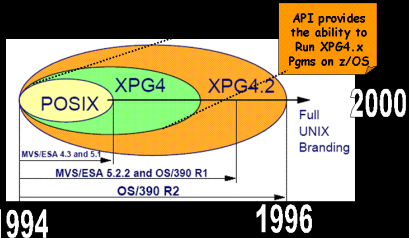
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Z



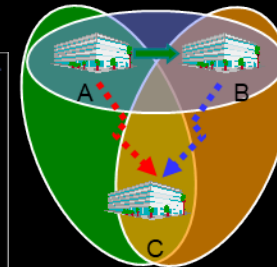
Z



Z



Z



Arquitetura Digital



Agilidade



Proteção de dados e privacidade



Excelência no nível de serviço



Inteligente



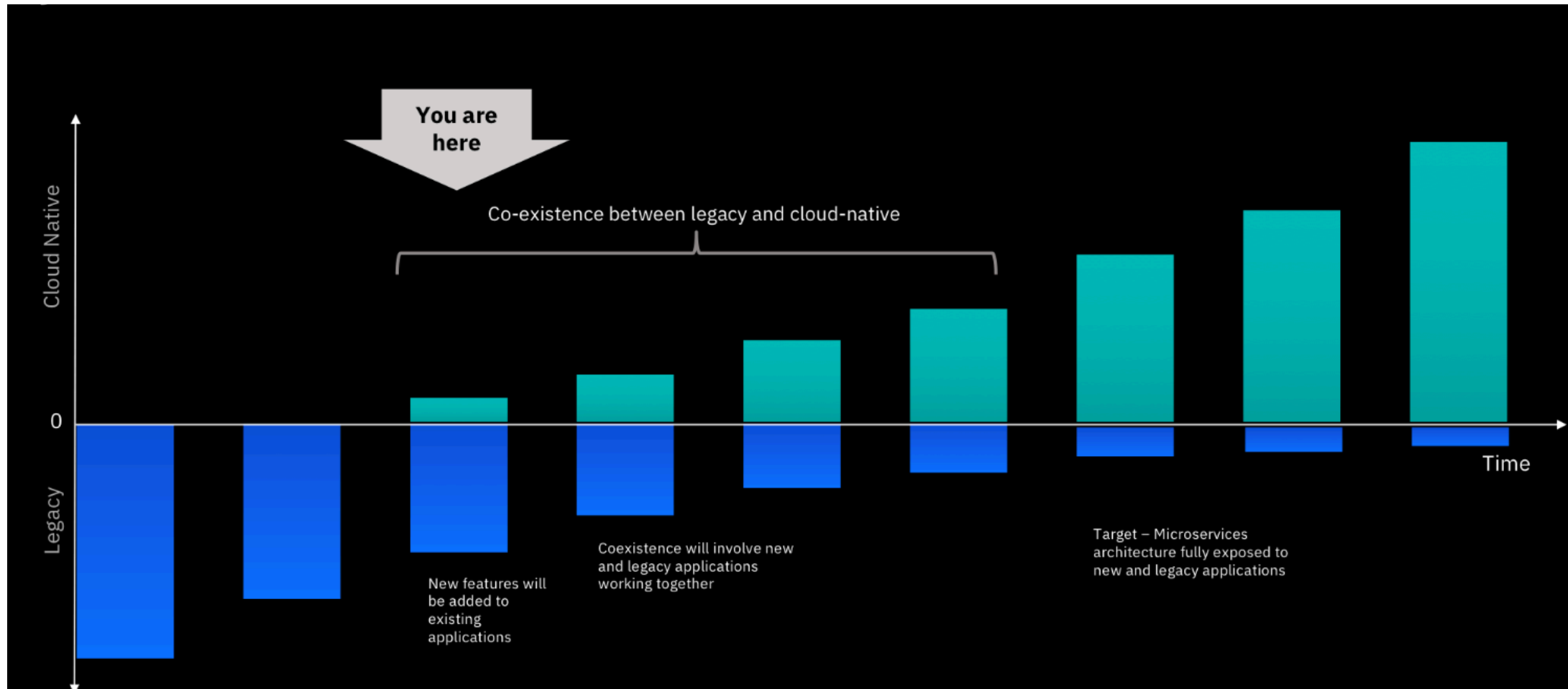
Integração



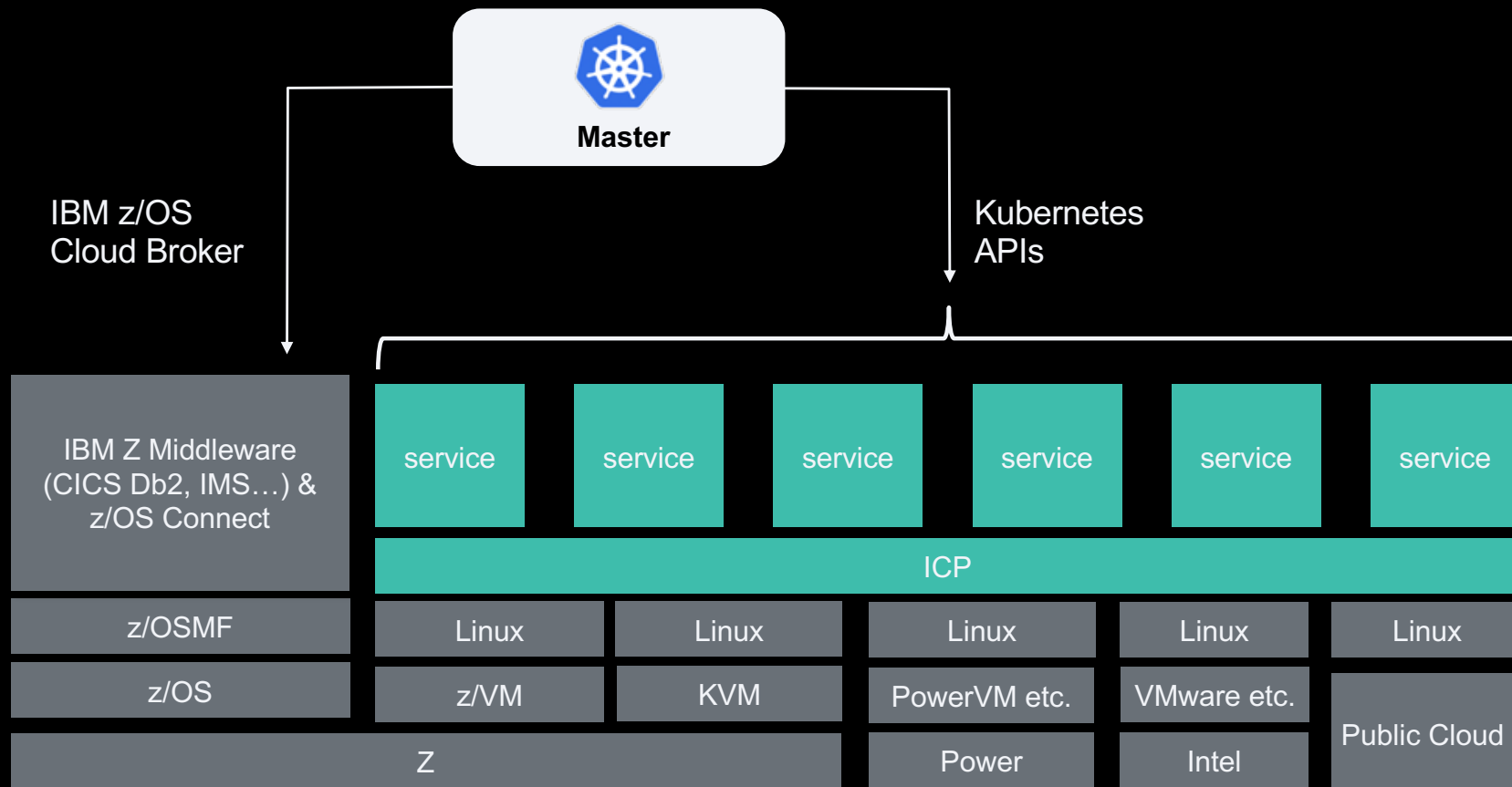
Open source and community



Tendência no Mercado de Cloud nos próximo 10 anos



z/OS Integração Digital - Ambiente heterogêneo entre diferentes Cloud

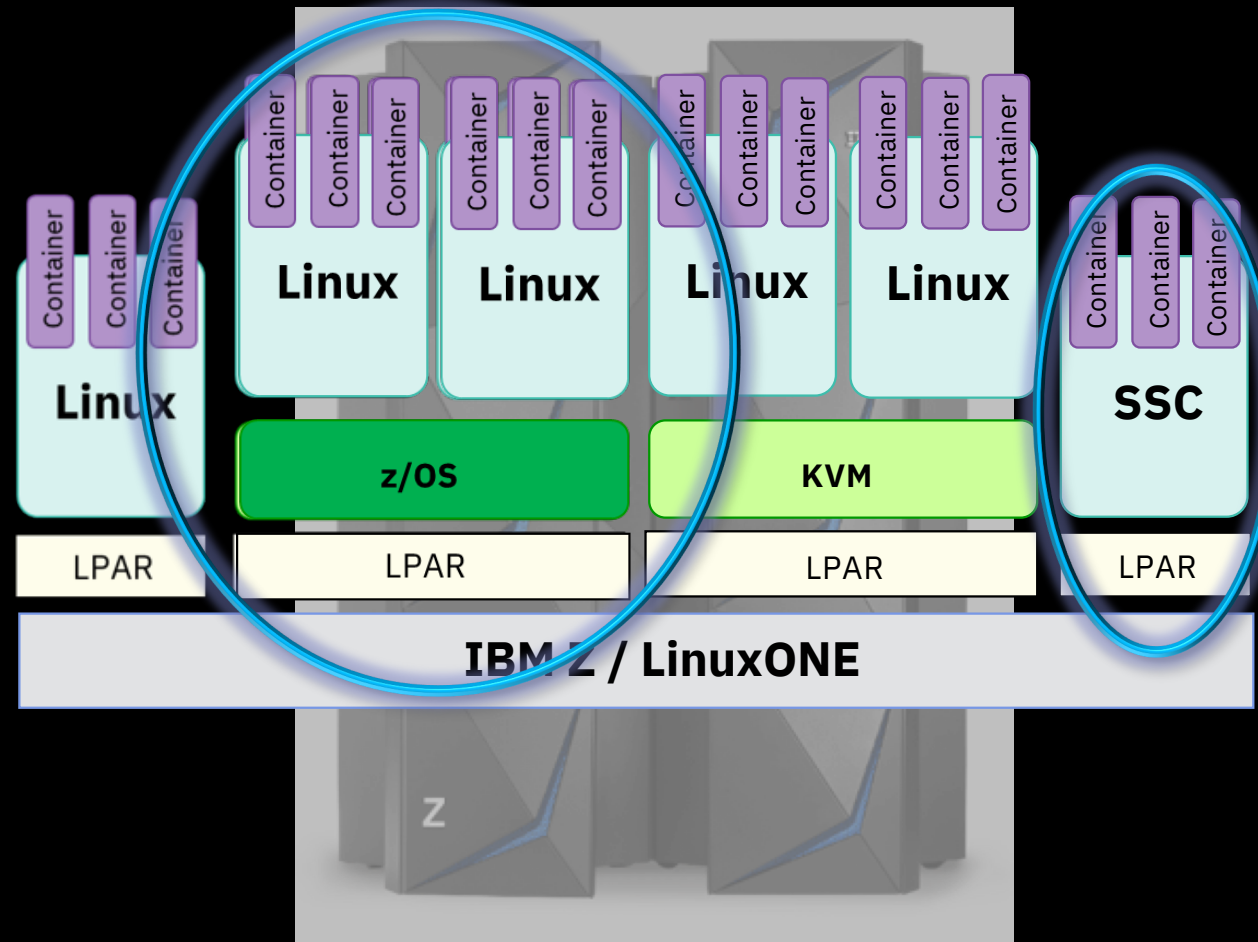


Containers

Inovação corporativa

workloads de missão crítica

Hybrid cloud



Secure Service Container



EAL 5+
Isolation

Up to
10 TB
Memory

- Implantação direta com o Docker
- Acesso apenas a usuários legítimos através de interfaces definidas
- Proteção de dados - Dados encriptados em memória e disco
- Sequência de inicialização protegida contra adulteração
- Proteções contra uso indevido de credenciais privilegiadas

Secure Service Container Core Values and Offerings



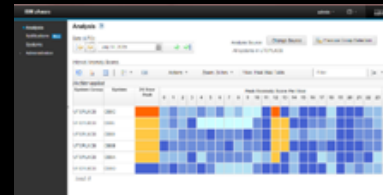
IBM DB2 Analytics Accelerator for z/OS

Accelerated DB2 Queries



IBM z/VSE Network Appliance

Provides TCP/IP network access without requiring a TCP/IP stack in z/VSE



IBM Operations Analytics for z Systems (zAware)

IT Analytics Anomaly Detection



Secure Service Container for IBM Cloud Private

Secure deployment of Docker / Kubernetes based Solutions to on-premise IBM Z or IBM LinuxONE Hybrid / Private Clouds

Management

- Deploy and manage appliance without needing Operating System skills
- Deploy solution instead of different components
- Limited variance of settings
- Automation via RESTful APIs
- UI for better user experience



IBM Cloud Hyper Protect Services

- IBM Cloud Hyper Protect Crypto Services
- IBM Cloud Hyper Protect Containers
- IBM Cloud Hyper Protect DBaaS
- IBM Cloud Hyper Protect Virtual Servers

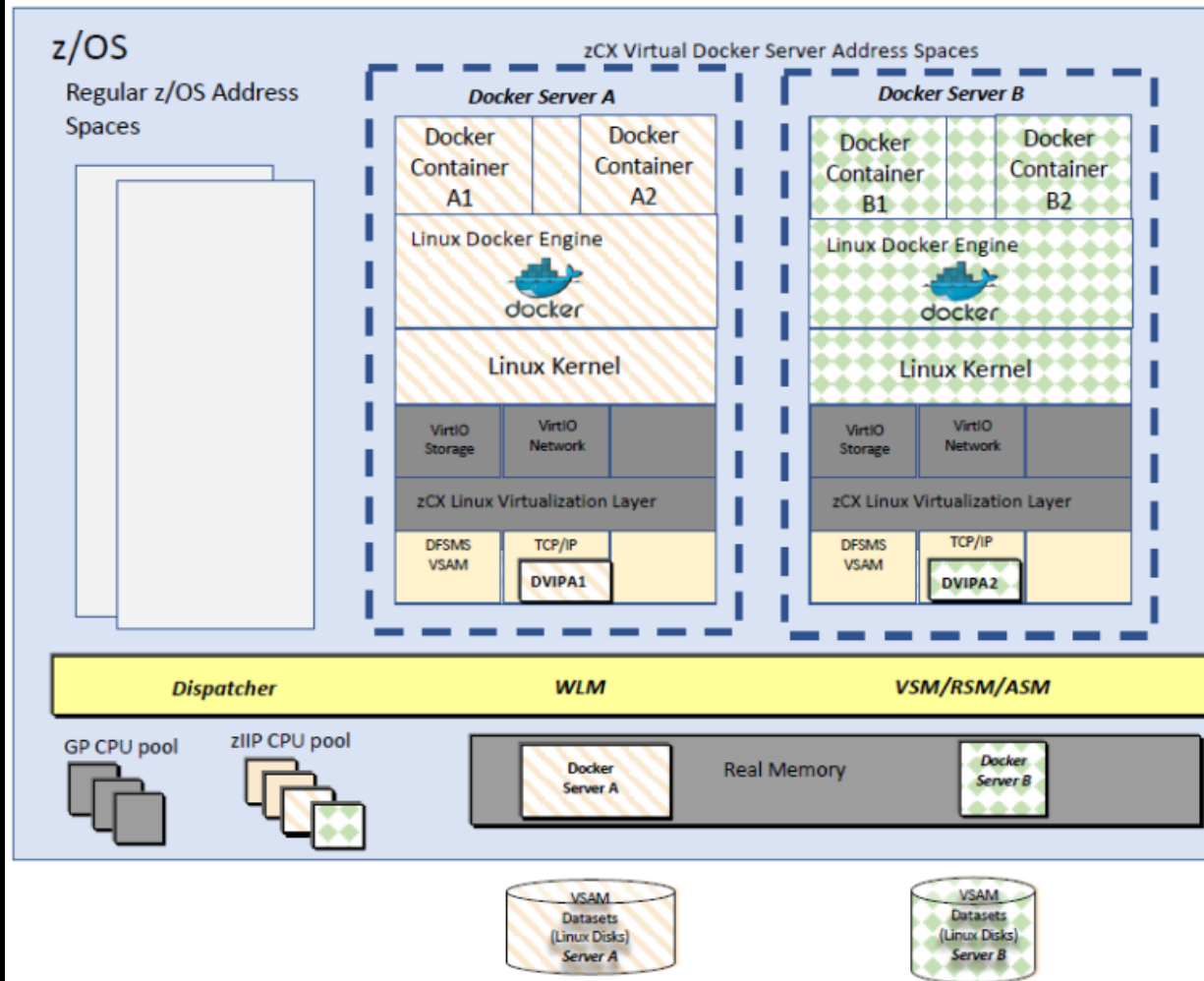
zContainer Extension (zCX)

- Connect z/OS to a new ecosystems and Opens Source communities : Microservices, DBs, Analytics frameworks, etc....
- Fast z/Os integration without new skills
- Use in depth z/OS QOS



zContainer Extension (zCX)

- **Memory (private fixed)**
 - ✓ 2GB
 - ✓ SWAP files
 - ❖ Be careful it is fixed !!!!
- **Processors**
 - ✓ z/OS TCBs
 - ✓ zIIPs
 - ❖ Avoid using more than the zIIP numbers
- **Performance**
 - ✓ WLM (execution velocity)
 - ✓ zIIPPriority
 - ❖ Resource Group (CPU/Memory) to control usage
- **Storage**
 - ✓ VSAM LDS for each container
- **Network**
 - ✓ VIPA



z/OS Cloud Provisioning (z/OSPT)

z/OS Provisioning Toolkit (z/OS PT)

é um utilitário de linha de comando simples para o provisionamento rápido de ambientes de desenvolvimento do z/OS.

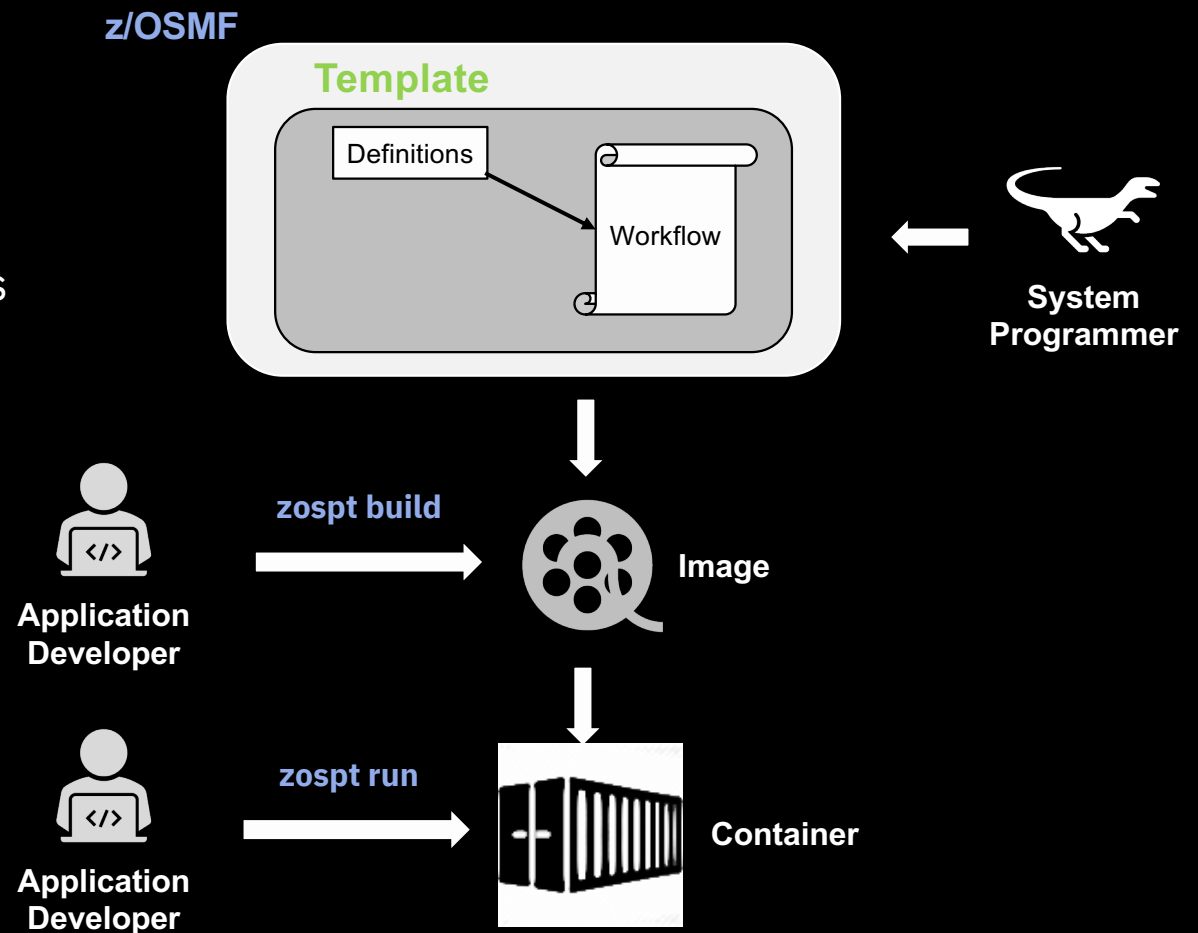
zospt build Build an application image.

zospt run Run an image provision/ start middleware.

zospt images List available images.

zospt ps List environments that are provisioned.

zospt rm Deprovision an environment.



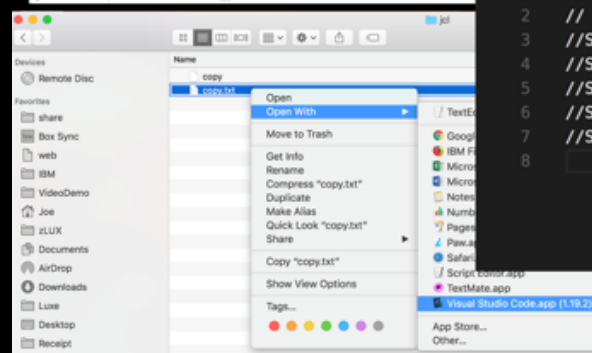
z/OS Cloud Provisioning (Zowe)

Zowe CLI

Interface de linha de comando que permite interagir remotamente com o mainframe e usar ferramentas comuns, como IDEs (Integrated Development Environments), comandos de shell, scripts de bash e criar ferramentas para o desenvolvimento mainframe.



```
zos27 (default)
joes-mbp-3:~ Joe$ bright zos-files download ds "TSTRADM.JCL(COPY)" --zosmf-p 3b
Data set downloaded successfully.
Destination: tstradm/jcl/copy.txt
joes-mbp-3:~ Joe$ pwd
/Users/Joe
joes-mbp-3:~ Joe$ zowe jobs submit local-file "winchj/jcl/copy.txt"
jobid: JOB45491
retcode: null
jobname: ZOWEDEM0
status: INPUT
joes-mbp-3:~ Joe$
```






```
copy.txt — Untitled (Workspace)
copy.txt x
1 //ZOWEFISH JOB 123456, 'TSTRADM',NOTIFY='TSTRADM',
2 // CLASS=A,MSGCLASS=H,MSGLEVEL=(1,1)
3 //STEP1 EXEC PGM=IEBGENER
4 //SYSPRINT DD SYSOUT=A
5 //SYSIN DD DUMMY
6 //SYSUT1 DD DISP=SHR,DSN=TSTRADM.JCL( FROM)
7 //SYSUT2 DD DISP=SHR,DSN=TSTRADM.JCL( TO)
8
```

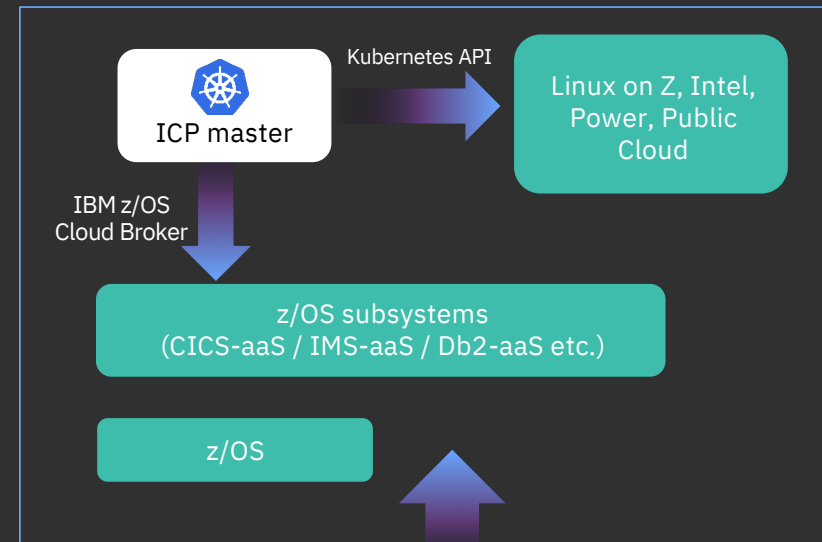
z/OS Cloud Provisioning (Cloud Broker)

IBM z/OS Cloud Broker

Integra serviços e recursos baseados em z/OS no ICP. Descobre automaticamente os serviços z/OS publicados no Catálogo de Serviços de Software e preenche esses serviços no catálogo ICP. Além disso, os desenvolvedores podem criar soluções avançadas que permitem padrões de DevOps usando o poder dos Kubernetes Jobs e Helm Charts.

FIGURE 1: SERVICES IN IBM CLOUD PRIVATE

 ibm-zos-cloud-broker Local-charts Provision and manage z/OS middleware	 zos-cics54 Service Provision a CICS TS v5.4 region with Liberty JVM Dropins enabled and with JDBC type 4	 zos-ims Service Provision an IMS service running on z/OS
 zos-connect Service Create a z/OS Connect server and upload your SAR and AAR files	 zos-db2-schema Service Create a new Db2 schema in an existing subsystem; backup and restore updates as needed	 zos-wlp Service Create a WebSphere Liberty server and upload your EAR or WAR files

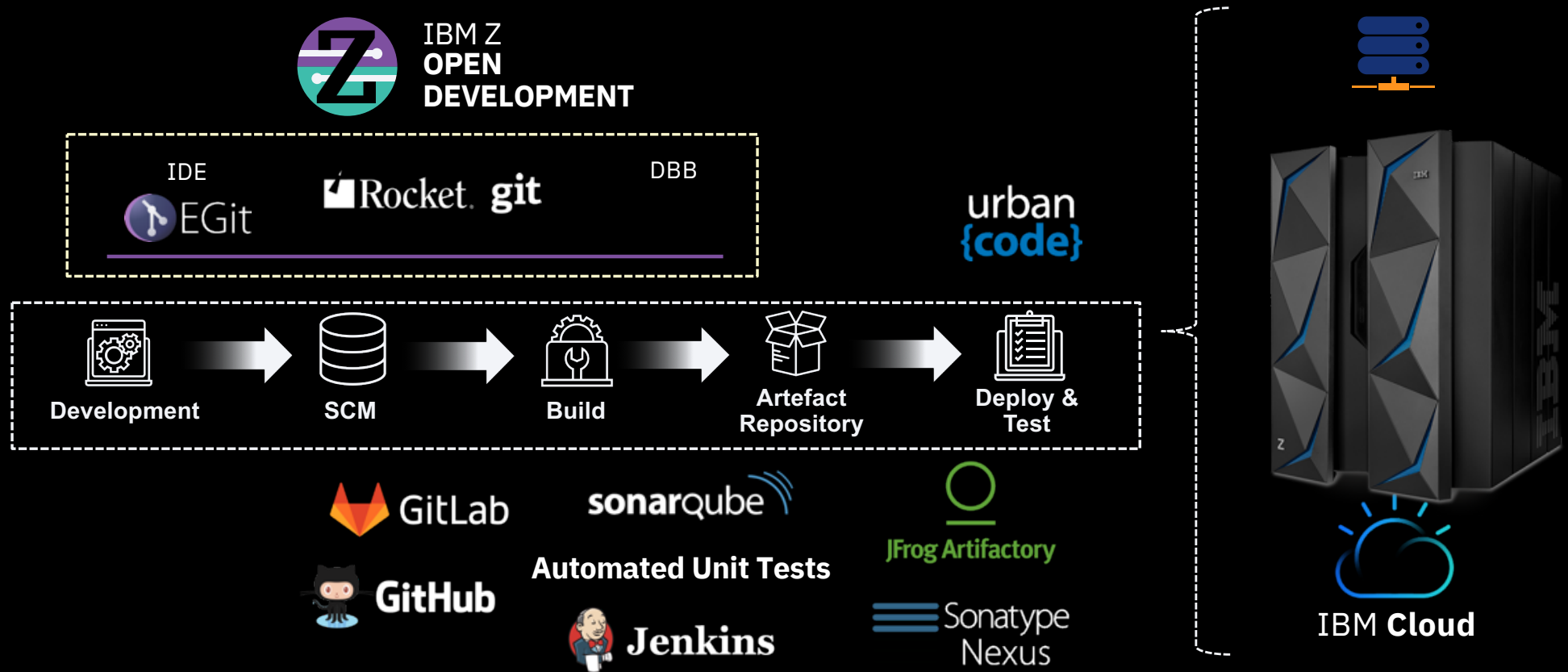


Catalog Management and Provisioning

Binding Applications and Services

Dashboards and Resource Cleanup.

IBM Z Open Development



Aproveite a linguagem mais adequada para a transformação

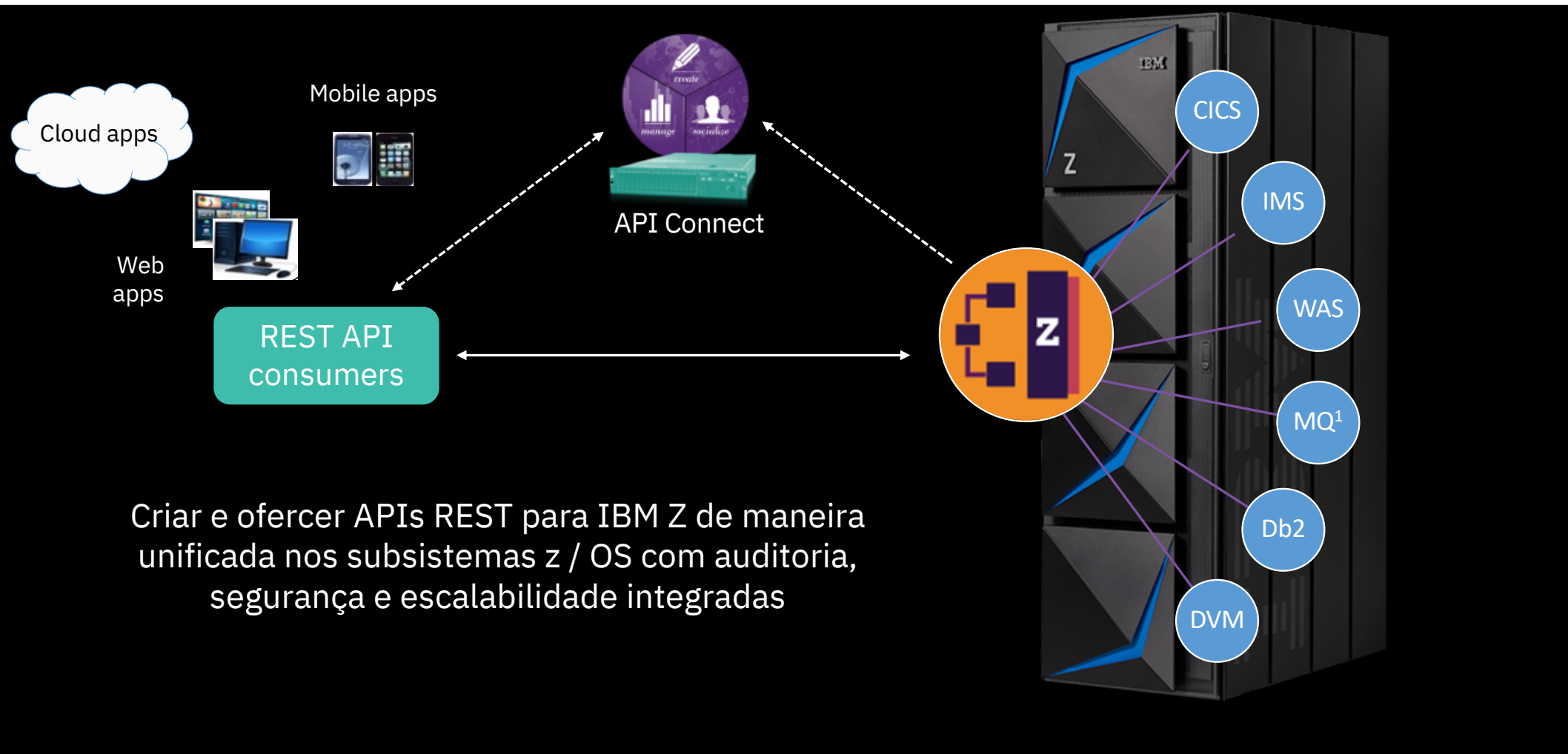
Application Front-End
(mobile, cloud, IoT)



Application Back-End



z/OS Connect



APIs RESTful

The screenshot shows the Swagger UI for the **CatalogDemo2016** API. The interface is divided into a left sidebar and a main content area. The sidebar, titled "myAPI", contains a tree view with the following structure:

- api
- api-docs
- services
- package.xml

The main content area features a green header with the Swagger logo and the URL `http://localhost:61119/api-docs/winmvs3s.hursley.ibm.com_9`. Below the header, the API title **CatalogDemo2016** is displayed, followed by the description: "APIs for browsing, inquiring and ordering items from a catalog".

The "default" section is active, showing a list of operations. The first operation is a GET request to `/items`. The second operation is a GET request to `/items/{itemID}`. Below the operations, the "Response Class (Status 200)" is shown, with a "normal response" and an "Example Value". The example value is a JSON object:

```
{
  "DFH0XCMWOperationResponse": {
    "ca_return_code": 0,
    "ca_response_message": "string",
    "ca_inquire_single": {
      "ca_single_item": {
        "ca_sngl_item_ref": 0,
        "ca_sngl_item_ref": 0
      }
    }
  }
}
```


Data protection and compliance are business imperatives

\$3.86M

Average cost of a data breach
in 2018²

27.9%

Likelihood of an organization
having a data breach in the
next 24 months ¹



Payment Card Industry Data
Security Standard (PCI-DSS)

European Union General
Data Protection
Regulation (GDPR)



78%



Of customers won't go back to
a breached organisation⁴

Of the **14 Billion** records
breached since 2013
only **4%** were encrypted ³

Health Insurance
Portability and
Accountability
Act (HIPAA)



LGPD

The General Data
Protection Law (LGPD)

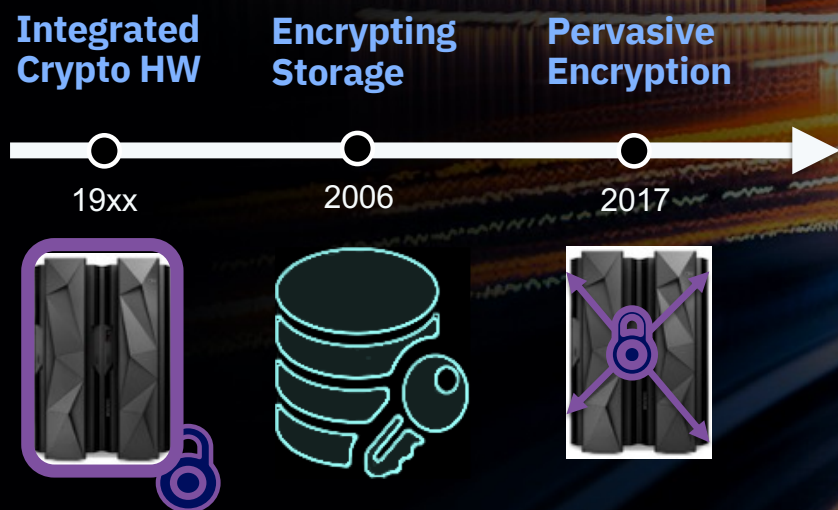


1, 2 Source: 2018 Ponemon Cost of Data Breach Study: Global Analysis -- <http://www.ibm.com/security/data-breach/>

3 Source: Breach Level Index -- <http://breachlevelindex.com/>

4 Source : Security Boulevard -- <https://securityboulevard.com/2019/01/78-of-customers-wont-go-back-to-a-breach>

Security



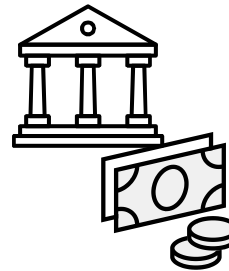
Customer Needs:

- Meet regulatory compliance requirements
- Complete authority over sensitive data and associated workloads
- Use of own encryption keys that only they can control
- **No access even to the cloud providers,** especially for sensitive and confidential data

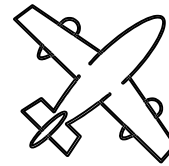
IBM Z no Mercado global



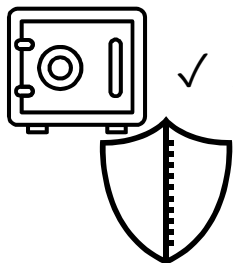
✓ 18 dos 25 principais varejistas



✓ 44 dos 50 principais bancos



✓ 90% das maiores companhias aéreas



✓ As 10 principais seguradoras

